JACQUES ROQUES

PSYCHONEUROBIOLOGY

Origins and Extension of EMDR

VOLUME 1

Psychological Anatomy Based on Neuroscience

To
Jany
my loving
and so very patient wife

Jacques Roques entered the world of psychology in 1963. After having studied psychoanalysis at the Institut de Psychanalyse de Paris (IPP), and becoming a member of the Société Psychanalytique de Paris (the original, most orthodox branch), he worked as a psychoanalyst from 1973 to 2003, when he left this organization, realizing that his ideas and his research in neuroscience as well as his clinical practice had moved away from obsolete traditional teaching.

Alongside his freelance activity, he has worked for 22 years as a psychotherapist for the psychiatric service at the hospital in Nîmes. In that time, he has also repeatedly been called to intervene at the secure unit of the psychiatric hospital in Uzès.

To his initial training he adds, over time, other methods of therapy such as Hypnosis, Psychodrama, Relaxation and Systemic Therapy. He also acts as the supervisor and analyst of work by other therapists, within the framework of several services, hospitals and organizations.

Having worked with EMDR since 1994, he has been trying to define the phenomenon of being able to cure Post Traumatic Stress Disorder with this psychotherapy. He is the author of two new psycho-neurological theories on psychological traumatism, as well as on the operational mode of EMDR. These theories are taken up again and elaborated in the present work and the subsequent two volumes. They are substantiated by several fundamental research works on EMDR in which he participated at the CNRS (Centre National de Recherche Schientifique) in Marseille.

Together with David Servan-Schreiber and Michel Silvestre, he founded the French EMDR Association in 2002 and has appeared in several televisions (see YouTube) and radio programmes, including a series of interviews on Radio Aviva, available on podcast on the website emdrrevue.com.

A Psychoanalyst and psychotherapist, registered with the Agence Régionale de Santé, Jacques Roques has held the European Certificate of Psychotherapy since 2003. He is Laureate of the 2010 Prize "EMDR, Research and Development" from the department of Psychology of Health at the University Paul Verlaine in Metz for lifetime achievement in the field of his work.

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Couple et EMDR
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PSYCHONEUROBIOLOGY

GENERAL INTRODUCTION

Scientific invention does not always follow a linear path. Nothing allows us to predict the place and the time of a major upheaval and the birth of a new paradigm. Serendipity plays a large part in this. Nothing is more normal than a well-known astronomer revealing a new planet, than a genius mathematician producing a great theorem or a man of the theatre a successful play. But a former English literature doctoral candidate making a vital discovery in the field of Human Sciences, because one day in 1979 she was told she had a cancer, is even more unlikely than the conception of the Theory of Relativity by a certain Albert Einstein, an unknown civil servant in Bern. And yet……..

Eight years later, Francine Shapiro is still a doctoral candidate. But in psychology this time around. "Your cancer is cured, but a certain percentage of people suffer a relapse. We do not know who nor why nor how, so good luck", she was told. This made her determined to change her course.

It is now 1987. Francine was looking for a topic for her dissertation and took her famous walk in the park. In her own words[1]: *EMDR is based on a chance observation I made in May 1987. While walking through the park one day, I noticed that some disturbing thoughts I was having suddenly disappeared. I also noticed that when I brought these thoughts back to mind, they were not as upsetting or as valid as before. Previous experience had taught me that disturbing thoughts generally have a" loop" to them; that is, they tend to play themselves over and over until you consciously do something to stop or change them. What caught my attention that day was that my disturbing thoughts were disappearing and changing without any conscious effort.*

In the history of mankind, how many people have not seen their troubles disappear after a walk in the park and have attributed the benefits to a diverting spectacle? And isn't fresh air reputedly beneficial to clearing one's mind? We can never be sure, but no one, to my knowledge, had ever perceived any curative relevance therein such as Francine Shapiro did while in search of a topic for her thesis. Likewise, how many before Newton saw an apple fall from a tree without deducing that the moon fell on the earth?[2] It fell, but it turned at the same time. Clever thinking on his part. She pursues her narrative:

Fascinated, I started paying very close attention to what was going on. I noticed that when disturbing thoughts came into my mind, my eyes spontaneously started moving very rapidly back and forth in an upward diagonal. Again the thoughts disappeared, and when I brought them back to my mind, their negative charge was greatly reduced. At that point I started making the eye movements deliberately while concentrating on a variety of disturbing thoughts and memories, and I found that these thoughts also disappeared and lost their charge. My excitement grew as I began to see the potential benefits of this effect.
And so EMDR was born, first named EMD for Eye Movement Desensitization. The R for Reprocessing came later, when she realized that not only were negative emotional charges reduced, but self-esteem was increased at the same time.
Five years later, one of my colleagues, the psychiatrist and psychoanalyst François Bonnel, lost a son to tragic circumstances and he and his wife went to the U.S.A. to try and overcome this cruel grief. Once there, they were fortunate to meet a therapist recently trained in the EMDR method who helped them deal with their bereavement. Bonnel was amazed at the results. He had been in the field for 30 years and knew that it could barely be possible to surmount such a difficult trauma in such a short time.[3]
On his return to France, he decided to organize the first EMDR course. It took place in Aix-en-Provence on the 24th and 25th of September 1994. The succession of improbable facts which make up the pattern of reality continued. He phoned me as soon as he arrived. It was the beginning of August. I was loading the suitcases in the car before leaving for the holidays. He asked me to come and see him. I trusted him. He told me his story and talked about his project. I put my name down for it.
Having started psychoanalysis in 1963, I studied from 1973 onwards at the Paris Institute for Psychoanalysis, the oldest and most orthodox institution for psychoanalysis in France. At the same time, I regularly attended the Groupe Lyonnais de Psychanalyse. My teachers at the SPP (Societé Psychanalytique de Paris) were Jean Bergeret, Serge Lebovici, André Green etc. I also worked as psychoanalyst in the psychiatric wing of the hospital in Nîmes as of 1975, studied and practised Hypnosis, Psychodrama, Relaxation and trained in Systemic Therapy.
I discover EMDR and am stupefied. The word "Cure" was taboo at the time when talking about psychotherapy, almost a "swear-word".

And there I was, experiencing – at times quite rapidly – spectacular cures and improvements in the condition of patients. Never before had I seen similar results. I give witness to that in my first work which was published in 2004. Nowadays, this reminds me of "Awakenings", Penny Marshall's great movie with Robin Williams and Robert de Niro.[4]

My practice of EMDR, even though rather hesitant at first, turned my understanding of psychological phenomena upside down. Curious, as all mammals are, I could never content myself with a triumphant "It works!" For me, it has always been necessary to know why. My entire life has revolved around the verb "to understand". So I turned to neurology and realized that words were but skimming the surface of the real, a kind of epiphenomenon. Therapies based on the word, on language, mistakenly give it primordial importance. The body expresses itself independently of speech.

This research took me to reconsider psychological trauma and, in 1998, I presented for the first time a new psycho-neurological theory, subsequently exposed in my writings[5], to a group of colleagues at the hospital in Montpellier, where we were lent a room. I will never cease to elaborate this theory.

Understanding normal and pathological manifestations in human behaviour must be done in psycho-neurological terms. EMDR is not only a technique, something which works, although that in itself is already formidable. It is psychotherapy in the real sense of the word. I would even go so far as to say, as I recently did during an intervention at a congress, that it is "The Psychotherapy". EMDR is the ultimate, since it respects natural cerebral functioning. In fact, I am more and more convinced that there exists, under different guises, only one psychotherapy, that which obeys the laws of the brain. Every time this is the case, results follow; otherwise, it can be a long drawn-out process and can even get worse – who does not move forward, often regresses.

On discovering EMDR, I tried to define its neurological base. Through understanding the mechanisms, I was able to improve the protocols and expand its applications. This is why I have given the three volumes comprising this work the general title "Psychoneurobiology", since it is the relationship between mind and body as a whole, neurological and biological, which interests me. As a sub-title I decided on "Origins and extension of EMDR",

because, starting with the psychoneurobiological foundation, I am hoping to see a new discipline emerge. Without Francine Shapiro and her discovery, I would not have been able to define it. Knowledge completes a circle with its applications. They nurture each other. Psychoneurobiological knowledge changes the way we look at illness. It allows for a different approach to the treatment of pathologies presumed difficult to deal with, such as dissociative disorders, borderline personality troubles, bipolarity, and even certain onsets of psychosis.

EMDR and Psychoneurobiology are linked. Originating in a fortunate though empirical observation, verified scientifically, recognized internationally, EMDR nonetheless lacked a solid theoretical foundation and Psychoneurobiology can provide just that. For this reason, before continuing with the subject, I will first, and rather at length, go back to a description of EMDR and its place in the field of psychotherapy.

As was noted at the beginning, EMDR is the English acronym for Eye Movement Desensitization and Reprocessing (of information). EMDR is actually the only therapy, together with CBT – cognitive-behavioural therapies – to be recognized globally by numerous bodies, starting with the prestigious WHO (World Health Organization), since July 2012, the American Psychiatric Association (2004), the Department of Defence and Veterans' Hospitals in the United States etc. In France, its use is recommended for the treatment of PTSD (Post Traumatic Stress Disorder) by the Haute Autorité de la Santé (HAS)6 after a primordial comparative study by INSERM (2004 – Institut National de la Santé et de la Recherche Médicale).

Today, EMDR is taught in France not only by the French Institute of EMDR in Paris in partnership with the Synchronie Organization in Cannes and Clairan in the Gard, as well as by the EFPE (Ecole Française de Psychothérapie EMDR) in Toulouse, but also at the faculty in Lyon (Université Claude Bernard - Lyon 1, in the framework of a university diploma in Cognitive Behavioural Therapy) and in Metz at the Université Paul Verlaine in their laboratory for the Psychology of Health.

Many experimental research projects have been conducted worldwide and in France. I had the privilege of participating in five studies under the guidance of Stéphanie Aubert-Khalfa at the Marseille CNRS (Centre National de la Recherche Scientifique) 7 –

one of them already published and the others in the process of publication – which objectivized results that were psychologically observable.
For example, the first study reviewed psycho-physiological responses to stress (respiratory, heart-rate and palmar sweating modifications) in patients suffering from PTSD, after one session of EMDR lasting one and a half hours. Although these patients all suffered the consequences of severe traumatisms (multiple rapes, murder of a parent, knife wounding, harassment leading to hospitalisation for non-restrictive Anorexia, pathological mourning etc.), the results were all very satisfactory. A telephonic follow-up more than six months later showed that the acquired benefits had been maintained.
Official recognition of the therapeutic efficacy of EMDR is very important, knowing that even now very few other means of efficiently treating PTSD exist. Few medications are active, only perhaps the beta-blocker Propranolol, which, in certain cases, temporarily suppresses the manifestations of the syndrome by preventing the fixation of memories. In terms of psychotherapy, only the cognitive-behavioural therapies which use the same psychoneurobiological means[8] as EMDR are really useful.
Even though the role of eye movement is of primary importance in this method and Francine Shapiro still endorses it even today, the scientific community and practitioners noticed rather quickly that tactile or auditive bilateral stimulations had the same curative effect in the treatment of psychological trauma. Actually, and particular attention will be paid to that in Volume 3 of this work which deals with treatments, we now also speak of BAS (bilateral alternate stimulations) and not only of eye movement.
In 2003, David Servan-Schreiber, a renowned neuroscientist, professor of psychiatry and director of a research laboratory in Pittsburgh, U.S.A., dedicated two chapters to EMDR - which he has taught regularly in France since 2002 - in his first, world-famous book *Healing without Freud or Prozac*, but in which he does not mention the method's underlying mechanisms. This is the reason why I endeavour to underscore the specificity of this psychotherapy in the writings I have devoted to it, having realized, as already mentioned, that one could not comprehend it without basing oneself on neuroscience.
Alongside EMDR, there very clearly appears a profound change in

paradigm, a breach in the field of semantics, introduced and developed by previous therapeutic approaches. Other therapies, such as psychoanalysis and the so-called psycho-dynamic therapies are based on the spoken word; Morenean Psychodrama and its derivations (Gestalt Therapy, Transactional Analysis etc.) use movement, gestures and role-playing; Systemic Therapy centres on the mechanisms of interpersonal communication; Rebirth and the Primal Scream are emotional therapies. EMDR integrates all of these approaches and adds the physiological dimension through the neuro-stimulating effect of BAS.

This psychotherapy not only takes into account cerebral function, but, while concentrating wholly on the person, its temporal dimension via protocols also takes into account the traumatic past, as well as its present manifestations and possible occurrences in the future.

Its clinical efficacy as far as treatment for psychological trauma is concerned not having required anymore proof for some time now, most clinicians have been trying to widen the field of applications for EMDR. In many cases – and I have repeatedly mentioned it in my previous work – this has been successful with phobias, reactive depressive disorders and sometimes even psychosomatic illnesses such as eczema. These successes were very often due to the inventiveness of the therapists, which is a good thing. A good psychotherapist must be creative. All the same, a better knowledge of the psychoneurobiological basis is needed in order to expand the field of application for EMDR even further.

In fact, the initial protocol *sensu stricto* more or less only takes into account pathologies of a traumatic origin (apart from, for example, the protocols for phobias), I would even go as far as to say simple traumas, although much work has been done to tackle complex traumas and dissociative disorders. But this is always done at the price of technical modifications such as using inverse protocol9, by reinforcing the resources or by other means, allowing the patient to progressively deal with too intense an internal strain.

Substantiating EMDR through a clarification of the psychological mechanisms has therefore been my main objective in the writing of this first volume. As its title indicates, it deals with a presentation of psychological anatomy, basing itself on neuroscience. There cannot be any discordance between theory and the clinical and fundamental observation of mental mechanisms. Established

hypotheses are only hypotheses, that is to say they are revisable alongside with and according to the progress of understanding. This work is written in tune with the scientific idea of refutation, very dear to Karl Popper's epistemology10.

Volume One will focus primarily on memory by revisiting the notion of recording exterior percepts, from the most archaic animal origins in the form of imprints up until that which characterizes the human being, namely a conceptual memory, one which concerns semantics. The question of what sense is remains primordial. Why do I understand the words I am hearing, recognize the objects surrounding me? From where does this mystery come? How is the psyche structured for this crucial phenomenon to occur? The word "sense" is not far removed from "sensation", even from "sentiment", but how does one articulate these words in a general description of mental functions, these images, these percepts, to understand how they make sense? The idea of sense really needs to be dealt with in depth. Sense unconsciously expresses the history of a repeated encounter with a concept by virtue of some phonemes, which will be demonstrated in this volume.

From a psychotherapeutic point of view, and this will later form one of the subjects of Volume Three which deals with therapies and protocols, a better knowledge of the notion of sense would clarify the recurring phenomenon of the feeling that one is " losing touch with reality" or "taking leave of one's senses" ("perte de sens" in French) from which our patients suffer at times. The search for "sense" really is for me the common theme of all human life. What furthers it? What hinders it? What is the link between the concept and the representation of the object to which it is connected? How does one continue living when life seems to have lost all interest and no longer makes sense or, even worse, when the only sense one retains brings about an immense disqualification of oneself? Understanding sense is fundamental. But "understanding" is that too, in its most general sense. For me, the word "understand" is a governing principle. It is that which has inspired my whole life. I do not like not understanding what is happening and even if I have often used techniques, specifically EMDR, without quite knowing why and how they work, I have always questioned myself. Understanding strikes me as essential, knowing fully well that the pretence of wanting to understand the bases of phenomena as complex as those of thought and its manifestations is a very

ambitious enterprise, practically a challenge. I am, however, taking that risk today.

Nonetheless, I am not forgetting that the clinic is there to remind us of our limits. It compels us to be humble. Phenomena guide us. The most beautiful of theories counts for very little faced with facts. It is not because one is sufficiently advanced in the conceptual internal representation of a phenomenon and one has verified the validity of hypotheses, that one can truly master a treatment. There is no use in hanging onto old perspectives at all costs, randomly patching up an obsolete system of theories, whilst the pathology so evidently thwarts that basic theoretical pattern.

These issues convinced me to rework the notion of “Ego” in the first volume, in terms other than Freudian[11], endeavouring to define that which is the essence and which I will call "the semantic". What characterizes humans is the faculty of abstraction: the existence of a semantic brain articulating concepts, starting with the most important, the one which has its roots in the sentiment of being oneself and which reflects what we call the "Ego". And, of course, it would not make any sense without memory which articulates it, without a tool which enables it to transcend a raw percept and create a meaningful living one.

In Volume Two, which deals with the function and malfunction of the psyche, we will see how this search for sense makes it possible to clarify a whole system of normal and pathological behavioural patterns. Malfunctions, occasionally benign but also, sadly, at times the morbid consequences of severe childhood abuse, can give rise to what appears to be a shattered life. In the general description of malfunctions, we should neither forget their social part nor their nosology with its manifestations, at times minor but also sometimes severely incapacitating, as is the case with dissociation[12] and psychoses. Research in psychoneurobiology naturally opens onto what one could call psychoneurobiotherapy, of which EMDR is the first expression, but certainly not the last.

In this world, there is only one incontrovertible book: the book of life. In order to know, one has to read it[13]. But it needs to be permanently written and rewritten. Boileau must be pleased; he who recommended trying twenty times over, if one did not succeed at first. Our knowledge, always incomplete and often prejudiced, however exists, even at the risk of error and inadequacy. I would not proclaim, as Socrates did: *All I know is that I know nothing*,

because the "all" at the beginning of the sentence and the "nothing" concluding it admittedly flap like a flag in the wind and dazzle with the radiance of mock humility, but are, *ipso facto*, definitely misleading, by virtue of being excessive and because their humility is fake. No, man does not know nothing; but man does not know everything either. He has a hold on a bit, just a very tiny bit of the information he receives which, in its turn, expands into the relativity of human knowledge.

The knowledge contained in the more or less flexible vessel of the human spirit grows, diminishes and fluctuates with time, but never completely disappears with it, since it does not really belong to it. The human being I am, as we all are, is only a temporary custodian of knowledge. We are never the owners of knowledge, not even that which our neurons distil; not any more than we are the owners of the children born of our flesh. Equally, knowledge gathered germinates in the fertile ground of the mind and burgeons, then lives its individual life and grows, couples and prospers at times, if it is shared and appreciated by others - under favourable circumstances. Because, unfortunately more often than not, it dies silently in the limbo which it never left or, even though shared, it does not find enough substance and echoes to develop. With these books I am hoping for a profound resonance.

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1 See Francine Shapiro *Eye Movement Desensitization and Reprocessing* - Guildford Press - New York, 2001

2 Perhaps this is only a legend. But it is a beautiful one and legends are a part of life.

3 Even though the matter is serious, I cannot stop from pondering Mark Twain's saying: *They did not know it was impossible so they did it.*

4 This film is based on the book of the same title by a professor of neurology and psychiatry, Oliver Sacks, who tells the real-life story of a patient suffering from the after-effects of Lethargic Encephalitis, a kind of semi-comatose paralysis, widespread between 1915 and 1926 and successfully treated by him with a new medication, L-DOPA.

5 See list of my publications in the bibliography.

6 See HAS - June 2007 - Page 18 - *Treating PTSD - chapter on structured psychotherapies.*

7 See Aubert-Khalfa S., Roques J. and Blin O. (2008) *Evidence of a Decrease in Heart Rate and Skin Conductance Responses in PTSD*

Patients after a Single EMDR Session - Journal of EMDR Practice and Research, 2 (1), 51-56.

8 As I showed in my third book *Discovering EMDR,* they effectively use the same psychoneurobiological processes, though less thought-out, therefore with less efficacy.

9 One starts to work with a scenario centred on the future and goes back in time towards the original memories, via the current triggers.

10 See Karl Popper *Conjectures and Refutations: the Growth of Scientific Knowledge,* 1963 - Routledge 2014

11 S. Freud strongly emphasized the concept of "Ego" within the framework of the second psychoanalytical topical model (until then, in the outline, he had dealt mainly with the question of personality). One can also quickly note the original contributions of Melanie Klein and Heinz Hartmann, who were criticized by Jacques Lacan who, in his own way, reclaimed the concept; and, of course, the work of Didier Anzieu in *The Skin Ego.* We should neither forget C. G. Jung who definitely moved away from Freudian orthodoxy. Recently, a certain return to the notion of "Ego" with a non-analytical approach has come to light, particularly with the works of A. Damasio *Self comes to Mind* and *The Feeling what Happens - Body and Emotion in the Making of Consciousness,* and with those of Onno van der Hart et al in *The Haunted Self: Structural Dissociation and the Treatment of Chronic Traumatisation.*

12 In the wake of major pioneering works (end of the 19th - beginning of the 20th century) by Pierre Janet, to a great extent forgotten in France (but rediscovered in the eighties in the United States with DSM III) and still too widely ignored, especially in their country of origin whereto they have, all the same, finally returned, research has actually been initiated to describe the major dissociative consequences of early long-term victimization.

13 What is called biomimetism nowadays, works exactly to that effect.

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INTRODUCTION

To this day, only psychoanalysis has attempted a detailed description of psychological anatomy, under the name of metapsychology. Created by Freud and continued by his disciples, it started with the initial concept of *drive*[14], that which pushes, sets in motion. Freud took up this hypothesis three times in succession; at first revolving it around the notion of conscience, then the existence of the "Ego" and lastly, from 1920 onwards, around the concepts of life and death. I call to mind the two trilogies: *Unconscious, Preconscious, Conscious* and *Id, Ego and Superego,* followed, after 1920, by the introduction of the fundamental duality in *Life and Death Drives*[15].

In light of the important impact it had on the epistemology of the 20th century, this interesting work suffers, rather unfortunately, from the inability to fit in with either a clinical evaluation of results - something psychoanalysts themselves challenge - or, even less so, with basic research. In fact, its theoretical developments remain scientifically unverifiable, despite the works of Allan Schore[16] who, together with others, tried to bring psychoanalysis closer to neuroscience under the term of neuro-psychoanalysis.

Yet the search for an organic substratum had always been present with Freud. By training he was a neurologist himself and was, for a long time, influenced by the rigorously physiological ideas of Ernst Wilhelm von Brücke, with whom he worked for 6 years, from 1876 to 1882. In 1914 he wrote[17]: *We have to remember that all our provisional ideas in psychology will surely one day find a basically organic sub-structure.* And in 1920[18], on questioning himself about the relevance of the *symbolic language* he was using, he said: *The deficiencies in our descriptions would no doubt disappear if we were already able to replace psychological terms with physiological or chemical ones.* In the same work, he voiced his concern over the validity of his hypotheses: *Biology is really a field of limitless possibilities; we must expect it to give us the most surprising insights, and we cannot guess what answers it will give us, in a few decades, to questions we will be asking it. Perhaps these answers will bring down the entire artificial edifice of our hypotheses.*[19]

Therefore, as I already mentioned in the General Introduction, to me it seemed crucial, for a better understanding of psychological function and its malfunctions, to develop a theoretical section,

consistent with the neuroscientific discoveries in constant evolution; here, underlying mechanisms of psychological functioning could be made apparent, verifiable both clinically and within the framework of basic research. Although the general title evokes biology, the principal topic in these theoretical prolegomena will be psychoneurology, the biological dimension mainly including neurology. We shall come back to that at a later point to facilitate the inclusion of a psychosomatic approach.

The model I am presenting is bound to be simplified compared to the explosion of discoveries in neurology. We now have numerous books dealing with neuropsychology[20]. By virtue of basic and applied research, this discipline establishes links between cerebral structures and their psychological expressions, their cognitive and/or emotional effects. The aim of two disciplines which link psychological observations and physiological ones in neurology is essentially identical. Evidently, the field of neuropsychology and that which I call psychoneurobiology complement each other. The change in denomination only underlines a shifting of the accent from neurology towards psychology. We could say that it means looking at the same object differently, literally from another point of view.

The French Wikipedia page gives the following definition of neuropsychology: *It is a scientific and clinical discipline which studies higher mental functioning and its relationship to cerebral structures, by means of observations conducted on patients with accidental, congenital or chirurgical cerebral lesions.* Stemming from that, a possible definition of psychoneurobiology would be: "Psychoneurobiology is a scientific discipline which, based on hypotheses of psychological organization, means to document - in compliance with clinical observation, neuropsychology and biology - the general functioning of the psyche, mnesic phenomena, the mind and the emotions, as well as psychological and somatic malfunctions".

Moreover, throughout this book, in order to underline the inherent congruity, I talk on several occasions about the existing link between present development and the neurological substratum. But in no way is this intended to give an in-depth description of associated mental and neuronal mechanisms, such as neuropsychology has brought to light. For three main reasons: I come from the world of psychology, neurology is a very complex science in which I am not specialized, and my first aim is to present

a new and effective psycho-therapeutic model showing the constitution of a psyche incorporating both the "Ego" and consciousness, so as to be able to understand what is sense. I am also concerned with adding a useful perspective to remind us of the cerebral basis in psychological manifestations and the logic of treatments.

In fact, the objective of this volume is to establish, as far as possible, the development of the two successive volumes on scientifically verifiable hypotheses. I am aiming at a better understanding of the functions and malfunctions of the psyche in the second and arriving at logic of treatment in the third. Only a better theoretical knowledge of the internal arrangement of the psyche can show its logic, including its craziest and most disturbing manifestations, which fall under the psychologic of its function. The psyche obeys a profound internal logic, even when, superficially, there is clear evidence that it is harming the subject itself.

This model of psychological anatomy, although simplified, remains complex - not difficult *per se*, but complex, in other words multi-parametered. While writing it, I found myself facing the problem of being unable to describe the functioning of one particular system without mentioning others interconnected and whose own description would follow at a later stage, hence the occasionally numerous and inevitable repetitions. Just as the brain allows expression, the psyche is an entire network. Despite of or rather due to these replications, I did all I could to make this presentation as clear as possible.

We are marked by Freudian metapsychology to such an extent that, when speaking of the psyche, we immediately think of the difference between unconscious and conscious, or else of the Freudian theory of "Ego", and the word *drive* comes to mind straight away, especially when one underwent a specific training for forty years, as in my case. Yet here the question of the unconscious does not arise, at the very least not in the Freudian sense of the word, but rather of that which never reached the conscious or which escaped it.

Defining it in short, the psyche could be seen as the overall manifestation of cerebral activity, of its voluntary or automatic expressions, of its blockages, of that which nourishes it, of its contents and its manifestations, both conscious and unconscious, and not only of the "Ego" and of thought. This volume is concerned

with the internal composition of the psyche, particularly mnesic and emotional. The "Ego" plays, of course, an essential part, but not the only one. Certainly, the "Ego" establishes individuality and a conscious feeling of being oneself is always present. It represents the personality of the subject. But we will see when studying psychological structures that we have to consider the "Ego" as an epiphenomenon, a major epiphenomenon certainly, but an epiphenomenon all the same. This distinction is indispensable clinically, in order to understand the hallucinatory phenomenon, for example.

The Freudian model of drive, more or less based on an ethological observation of instinct, will not be taken up either. The same goes for that which falls under the unconscious. Of the unconscious, I will retain only its purely mechanical aspect, as, for example, the one discovered by Benjamin Libet in 1973[21], and then in 1982. (The experiment was carried out again and subsequently verified several times). Keep in mind that Benjamin Libet received the *Virtual Nobel Prize for Psychology* in 2003 from the University of Klagenfurt, for his *Achievements in the Experimental Investigation of Consciousness, Initiation of Action and Free Will*. Differently in manner and aim from Carl Gustav Jung, who had worked on it in 1904, he proved that between a stimulus, awareness and a motivated decision following it, a significant moment in time - up to 500 milliseconds - could elapse. All in all, unconscious simply means non-conscious.

As mentioned before, I claim that the presence of a psyche, of an "Ego" and of a consciousness is logical and I consider this phenomenon corollary to the notion of memory. Therefore, the general theory of memory to which I am laying the foundations in the first part of this work, is not quite compatible with the mainly descriptive classification in the works of Endel Tulving[22], one that is generally predominant. This theory has to recover the logical thread which enabled its organization and thereby release its essence; only thus can it clarify, amongst other things, the rather curious phenomenon of semantics. Indeed, I could not be satisfied with pronouncing the existence of a semantic memory without stating what makes it semantic, without talking about the why of sense.

We shall see how this new approach to memory allows a different introduction to the notion of "Ego"; an "Ego" consisting of many

distinctive states of "Ego", gathering a large network of memories. These conditions constructed themselves over time, starting out from the integration of adaptations, life experiences and defence mechanisms. They are therefore built on the networks of specific memories linked to each other and will be naturally reactivated, depending on the circumstances.

Since a theory has to first of all serve the clinic, I shall start by emphasizing the defence mechanisms, underlining their links with the function of the autonomic nervous system. I will also, right from the start, make reference to the latter's role in manifestations of psychological trauma, a notion I had already proposed earlier. From then onwards, the work will be developed in an order of incremental complexity.

Thereafter, I will study the emergence of memory and its internal organization. Much work has been done on that and today we hardly ever talk of "memory", but of memories as such, commensurate with their classifications: declarative or explicit, non-declarative or implicit.[23] Of course I am not forgetting Endel Tulving's once groundbreaking works, to which I shall come back further on, even though my approach is different and leads to another theory. To understand memory, to better define it, is to comprehend the psyche.

As it is with skills, so today's psychological sufferings always bury their roots in the past. The internal organization of memories can bring ease, as much as it can bring actual difficulties of all kinds and illnesses. Firstly, we will discuss memory in general. This will certainly not be exhaustive, that is in no way the aim of the work; numerous well documented books have already been written on the subject.[24] Then, in another chapter, I will elaborate on what seems essential to me: the structural dynamics of different memory forms interacting with each other and their connection with thought and mental structuring.

Some personal hypotheses throughout this volume should then, seen from a new angle, give a different representation of the "Ego" and clarify its relationship to the psyche. In order to achieve this, it is necessary to shed light on the various memories, of which a certain number play a vital role in the proper acquisition of skills and knowledge. Some are useful for a whole lifetime, others are at the origin of pathological evolutions, at times very damaging.

My first aim stays clinical. It is the observation of malfunction

which makes us ask questions and look for answers. That knowledge owes a lot to unhappiness, to suffering and to the interrogations to which they lead. The practice of treating trauma with EMDR has brought me to the present development, with the goal, *inter alia*, of clarifying the structural difference between simple and complex traumas, something which remains to be dealt with in depth. It will be more specifically developed in the next two volumes.

In this one, we will come back to and sequentially study: defence mechanisms, my psychoneurological theory of psychological trauma, transformation of negative emotions, memory, the signified and the signifier and their relationship to the concept[25] and the sensory-driven image[26] (and not only acoustic, as Saussurian linguistics present it), the psyche and the "Ego", the different memories, the network of memories, the "Ego" states and the role of the emotions linked to them.

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14 The concept of *drive* first appeared in 1905. Before then, the accepted reference was energetic (excitation) and comes therefore closer to a neurological basis. Let us not forget that neurology was one of Freud's first subjects of study.

15 See Freud S. *Beyond the Pleasure Principle* - 1920

16 See Shore A.N. (2001). *The Effects of Early Relational Trauma on Right Brain Development, Affect Regulation and Infant Mental Health".* Infant Mental Health Journal, 22, 201 – 269. .

17 See Freud S. *On Narcissism: An Introduction* - 1914

18 See Freud S. *Beyond the Pleasure Principle* - 1920

19 See Freud S. *Beyond the Pleasure Principle* - 1920

20 See Roger Gil *Neuropsychologie* (5th edition) – Masson – 2012 ,or for quick viewing and constant updates in English, on Wikipedia under "Neuropsychology"

21 See Libet B. (1973) *Electrical Stimulation of the Cortex in Human Subjects and Conscious Sensory Aspects;* Iggo A. (Ed.) *Handbook of Sensory Physiology*, p. 743–790, Berlin, Springer-Verlag, also Libet B. (1982) *Brain Stimulation in the Study of Neuronal Functions for Conscious Sensory Experience* Human Neurobiology, 1, 235–242, see also *The Timing of Mental Events: Libet's Experimental Findings and their Implications* in *Consciousness and Cognition*, 291–299 (2002) ,where he replies to criticism, and *Reflections on the Interaction of the Mind and Brain*, *Progress in Neurobiology*, p. 322-326, 2006 where, strangely enough, he tries to reintroduce the notion of free will.

22 We owe Endel Tulving the elaboration of a general theory of memory which separates, from 1972 onwards, recollection of memories, of episodes in our life, from the memory of sense- for example of words and their semantics.
23 Declarative memory is a recollection of information which can be consciously expressed through words. On the other hand, non-declarative memory is remembering through learning processes, habituation and conditioning. It expresses itself through tendencies and behaviour.
24 For example the book by Daniel Schacter *The Seven Sins of Memory: How the Mind Forgets and Remembers,* which broaches the subject under a psychological angle and where we can find a reminder of Deborah Burke's and Donald MacKay's work; I give a detailed analysis of that in the Annexe.
25 According to a drawing by Ferdinand de Saussure in the form of s/S, signified and concept are synonymous. The signifier relates to the acoustic image.
26 Every time I am talking of image or of sensory-driven perception, it will be in a very wide sense, comprising sensoriality, motor functions, proprioception and interoception, everything which can pluri-modally sustain the percept.

Part One

Elaborating Conceptual Tools

Principal Topics

Defence Mechanisms
Psychological Trauma
The Origins of Memory
Bases of Psychological Anatomy
The Psyche and the Ego

Chapter 1

Short reminder

Defence Mechanisms [27]

The 3 F's

Why start with the study of defence mechanisms? Simply because they are crucial to the duration of existence. Each and every individual life is a battle. There can be no survival without protection and defence mechanisms against the external environment and its inhabitants. Let us look at the defensive or offensive behavioural patterns even of unicellular life forms. In an interview in *Nature* magazine, Antonio Damasio[28] reminds us that: *with its vibratile cilia, the paramecium immediately recognizes a favourable or unfavourable environment, quickly backs away from a contact perceived as dangerous or aggressive, and approaches appetizing bacteria.*

The first and foremost necessity for any living being is to be and stay alive by avoiding danger, taking nourishment and reproducing. The principal aim of every life form is to live and to pursue this aim for as long and as agreeably as possible. From conception until death, despite surreptitious wear and tear, everything which is alive will consistently carry on protecting itself by the only three means at its disposal when faced with a sudden threat[29] - I am speaking of the famous *3 F's*, namely *Flight*, *Fight* and *Freeze*.

FLIGHT: The emotional sign in humans as well as animals is fear and its specific hormonal manifestations, such as the production of noradrenaline at the cerebral and cortico-adrenal levels; at this latter level, it complements that of adrenaline and cortisol[30] to boost the organism in preparation for a quick escape. It really is the first line of defence. When there is danger, we take flight. Only when there is no other way left, will an animal, a dog for example, attack; whenever it does it systematically, it means that it is already damaged by bad training or maltreatment.

FIGHT: If conditions do not let us avoid the situation or if they seem to lead towards confrontation, the same neurotransmitters as above will serve when encountering battle. A frightened dog bares its teeth to intimidate its adversary, or else it attacks. In nature, aggression is not necessarily limited to the demonstration of a defence mechanism. It can also be the expression of a predatory instinct or a sexual display. It seems important here to succinctly

underline, within the register of *Fight*, the important role aggression has played in the development of the species. Etymologically, aggression comes from the low-Latin *agressio* = attack, derived from the Latin *adgredi,* meaning "going towards, walking ahead". The evolution of the species has therefore managed to go beyond the simple survival instinct, using the same neuro-mediators to move ahead, to command and to conquer space, as if the whole world was a rival to be confronted.
Humans have multiple expressions for fight. They can be simply verbal (insults and different forms of disregard for the other) or they can be behavioural (i.e. armed violence - we know only too well the human capacity for inventing means of destroying an adversary).
Within the register of *Fight* - apart from the distinctive fact of defensive reaction to a real or imagined aggression - I would, personally, insist on the concept of a mental defence mechanism, orientated towards the exterior world, and call it "disqualification ". This makes it possible to repel, internally and often externally, a hateful image or an unpleasant memory with a verbal aggression or violent and frequently uncouth thoughts. Unfortunately, disqualification is a process used widely within the family, sometimes, quite paradoxically, for so-called educational purposes: "Lazy so-and-so, you'll never get anywhere in life! You are useless!" In such cases, when we analyze the parent/child communication, it demonstrates a confusion between what is inter- and intra-psychological. The parent thus tries to reject a censured personal image inside him (or herself), triggered by what he saw in his child. To remove it, he looks to destroy it on the outside by disqualifying it.
When understanding the mental mechanisms of projection, it is important to note that the child receives the demeaning message as if it were true and relevant, when, in reality, it is only an outside opinion; the opinion of a parent who is, above all, talking about himself and his own incapacity to resolve personal issues, triggered by the sight of his child.
This ought to be taught at school: whoever belittles you, is not talking about you, but of his desire to annihilate you, because he cannot bear the thoughts coming to his mind when he sees you, you and your behaviour. He feels bereft. He is afraid, so he attacks. The aggressor gives information about himself, about his own problems

triggered by the person he is speaking to and, contrary to appearances, is not talking about the aggressed; although the latter, blinded by the violence of the attack, is hurt all the same.
From a neurological point of view, the aversive stimulations provoking *Flight* or *Fight* in their turn activate the circuit of punishment[31] ("periventricular system" - PVS), enabling us to face unpleasant situations. This system involves different cerebral structures, such as the hypothalamus, the thalamus and the central gray matter surrounding the aqueduct of Sylvius. Secondary centres can also be found in the amygdalae and the hippocampus. This circuit functions in the brain by virtue of acetylcholine and stimulates the ACTH (adrenal cortico-trophic hormone), the hormone which then stimulates the surrenal gland to liberate adrenalin, preparing the organs for *Flight* or *Fight.*
FREEZE: Frequently authors, when writing about this, wrongly allude to animal behaviour and quote the example of the opossum, playing dead when threatened. This metaphor is not accurate. Playing dead is an active attitude. For that matter, the opossum gives off a strong smell of putrefaction to mislead the predator, provided, of course, that the latter is not a carrion eater. Likewise a field mouse, catching sight of a bird of prey in the sky, will stand still on the spot, so as not to attract attention by moving. These are active attitudes, pertaining to what is called *coping*[32], a way of avoiding danger, and they approximate the behaviour of *flight*.

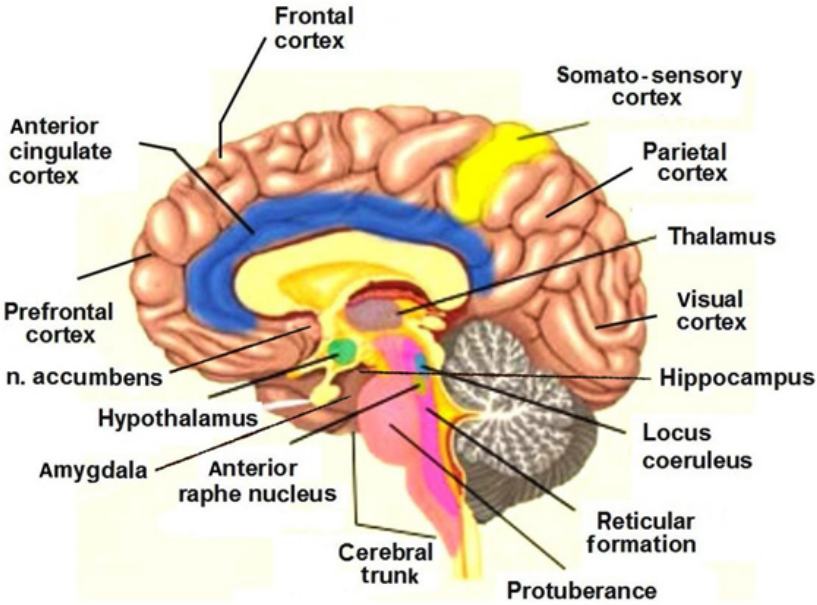

Figure 1 – Sagittal cross-section of the brain

This cross-section's only aim is to remind the reader of how to localize certain cerebral structures mentioned in the book.

Neurologically speaking, *Freeze* hinges on the *Behavioural Inhibitory System* (BIS). Henri Laborit discovered this mechanism in the early 1970's. It is associated with the septo-hippocampal system, the amygdalae and the basal nucleus. It receives input from the prefrontal cortex and forwards the output through the noradrenergic fibres of the locus coeruleus and via the serotoninergic fibres of the median raphe. The BIS is activated when *Fight* or *Flight* seem impossible and when the only behavioural choice is passive endurance. The pathological consequences of repressed action show to what extent chronic stress can become destructive to human beings.

It is true that when it can neither escape nor attack, the animal freezes, adopts a submissive attitude or else suffers a depressive shock. The excess cortisol acts like an opponent to the serotonine, changing the latter's receptors. Equally, it diminishes the dopamine's action in the brain and is therefore a mood-depressogenic.

With humans, freezing is a paralysis, probably stemming from various other causes: a fundamental indecision between *Flight* and

Fight, for example; a lack of cerebral reference data programmed for such actions, a primal authority which auto-reinforces paralysing terror, mobilizing agonistic and antagonistic musculature simultaneously. In many cases, there is a consciousness impairment of the event and it makes no sense any more. *The world makes no sense any more*, to cite R. Janoff-Bulman[33], as opposed to statements defining normality.

The importance of *Freeze* needs to be underlined - this complete immobilization of any action or any thought in a traumatized individual. It is a peri-traumatic reaction, can last a long time, continue in the form of action inhibition - described by H. Laborit[34] with regards to experiments on laboratory rats - and can result, at times, in very serious somatisations. Any psychotherapist confronted with a physical pathology ought to consider *Freeze* and start looking for a psycho-traumatic origin.

Other negative emotions such as shame and disgust can also be seen as a *freezing* of solutions consequential to situations like flight - avoidance or confrontation.

Transformation of negative emotions

I believe that we can consider the transformation of negative emotions as a primordial defence mechanism. It is basic to the understanding of psychological malfunctions (states of depression and disassociation, psychoses etc.), which will be elaborated in Volume 2.

When an emotion becomes unbearable it can, depending on the circumstances, transform itself as per a specific order. If we draw up a list of the seven primary emotions, with the first two we arrive at the following:

Surprise: other possible variations: amazement, astonishment, bafflement, shock. This is a neutral emotion, that can vacillate towards a positive emotion like …

Joy: affiliated with pleasure, wonderment, contentment, well-being, amusement, euphoria, happiness, or else towards the following negative emotions, listed in order of their possible defensive transformations. To escape the intolerable experience of the one, the subsequent one, whenever possible, is an option:

Fear and its variants: fright, when short-lived, horror when intensely startled, terror when very strong and lasting, anxiety[35] when feeling a real or imagined danger, panic when everything is out of control.

Other possible variants of fear are: dread, nervousness, worry, apprehension, anguish, butterflies in the stomach (or stage fright), dismay.

Anger is generally fleeting even when intense, like a dog reacting to its fear, baring its teeth at a genuine adversary. Anger also has its variations. There is rage, which has no real target. It is flexible, as in the small child breaking everything. It has no boundaries and we link it to madness - "To be mad with rage". It is very close to fury which, however, can have a target. Hate is anger towards something real or virtual (towards a certain type of behaviour for example), but not manifested, at least not immediately. It is renowned for generating vengeance, that dish which is best served cold. And remember in passing, that hatred of hate or of hateful people is still hate.

Other possible variations on anger are: irritation, discontentment, resentment, shouting and screaming, exasperation, outbursts, aggressiveness, violence.

Sadness: it appears when anger - after a loss, deprivation or bereavement - is impossible and, as with anxiety, it generates pain which then backfires. As already mentioned, excess cortisol alters the receptors of serotinine and is therefore depressogenic. Despair is another variant, a sadness without remedy. Like desolation, despair is always accompanied by a feeling of helplessness. The evolution of sadness, depending on the initial conditions, results in two different manifestations, and their mechanisms will be discussed in the next volume.

Melancholy, popularly also known as spleen, is commensurate with a permanent sadness, a loss of interest for life, in other words a state of depression, preponderantly dominated by an interior *Freeze*. Melancholy, in the psychiatric sense, can be explained by a violent, ever-increasing, exhausting and inextinguishable self-hatred. As part of the *Fight* syndrome, it is accompanied by progressively serious suicidal thoughts and generally moves onto very violent autolytic acts, such as defenestration, suicides with a firearm or throwing oneself under a train. During melancholic bouts, as during self-mutilating or risk-taking behaviour, we can see an auto-destructive replay of *Fight*.

Other possible variants of sadness: sorrow, distress, despondency, dejection, depression.

Shame is a kind of fulgurant depression, directly targeting the

"Ego", narcissism and the normal self-image. It stems from a dissociation between objectal self-observation and harsh judgement, affiliated to and depending on embedded ideals of self-image. Experienced as a collapse of self-presentation towards the outside world, it is synonymous with: "I do not, or not anymore, correspond to the ideal image others should have of me". It relates to one loss only, namely that of self-worth; and this loss can be neither excused nor hidden - clearly, everybody is noticing it. Unlike guilt, where forgiveness is possible, shame is irreparable. It touches on one's very essence and like honour - to which it is closely related - can only be cleansed by blood, by self-annihilation.

Shame is equivalent to fear, insofar as the latter can be linked to an object, namely the relations the subject has with the outside world, though they merely threaten his life; but whereas fear can cease by moving away from the object of danger, shame, on the other hand, once established, is inescapable and indelible.

Initially, life itself is not endangered, but the self-image is, and the situation becomes life-threatening, since the only solution left is suicide. In some civilizations (for example in Japan, up until its capitulation), "losing face" - literally not being able to expose one's face to the regard of the other - results in compulsory death by *seppuku* ("cutting of the abdomen"). In France, François Vatel, in April 1671, for the same reason of not being able to survive dishonour - he could not serve fish to King Louis XIV as intended, due to a bad catch - committed *hara-kiri* ("opening of the abdomen") by thrusting a sword through his body, according to a letter by Mme. de Sévigné36.

Other possible variants of shame: dishonour, stigmatization, opprobrium or disgrace, debasement, infamy and narcissistic collapse.

And lastly **Disgust,** which can be physical or psychological. It expresses itself through a profound aversion to and a total loss of interest in life, and can provoke nausea and an urge to vomit. Generally, it is a bodily reaction, the expression of expelling a noxious substance of possibly traumatic and unutterable origin. When a patient conveys this emotion, it would be prudent to have a receptacle ready, just in case.

Other possible variants: repugnance, aversion, contempt, antipathy, repulsion, stomach-turning, distaste.

Clinical illustration:

Even though this book's principal aim is that of a theoretical presentation, I think the reader might find some clinical examples interesting.

From a therapeutic point of view, taking defence mechanisms into account is very important. Often we are dealing with patients who say they are victims of an injustice - and that is most probably true - but their complaints, though vociferous, can do nothing whatsoever to effectively heal the internal wound. Outwardly, they generally use the *Fight* defence to avoid recalling the painful feeling of the moment the traumatic event happened. They keep harking back to the occurrence and are eaten up by rage.

For a month now, Georges, after having lost his job, has been alternating between a ferocious rage towards his former employer and a state of depression - feeling listless and spending his time in front of the television. He was dismissed after more than 20 years in the company, when others, with less seniority, had kept their position. He wants to "screw them over - that's all they deserve". This anger is unproductive and this long-lasting *Fight* in fact rather resembles a *Freeze*. We can only deal with a problem by tackling it at its roots, as we can only recover our keys where we have left them. And it was only through recapturing the staggering shock when told of his dismissal - he could not believe it at the time - that he was able to recover sufficient energy to file suit with the industrial tribunal. The therapist, especially one working with EMDR, should therefore go back to the beginning and find the due cause of the fear and humiliation which lead to the initial situation. Treatment ought to start from there, and not from the pseudo-manifestations of an impotent anger or a contingent consecutive state of depression.

Generally speaking, we know that whenever we are able to go back to the traumatic origins of a pathology, good results can be obtained very quickly when working with EMDR protocols. We have to dismantle the pathological defence in place to forget the initial shock and go back to the roots. We have just been looking into the case of a person avoiding the recollection of a hurtful memory, complaining of injustice and hating his aggressor. But it also happens that traumatized people cannot feel even mental anger towards the person responsible for their suffering; they are so overwhelmed that they go directly from the initial terror at the moment of the event into depression (*Freeze*).

Yet anger stays with them, even though it does not appear as such. *Flight* and anger not having been a possibility, what is left is stupefaction, freezing, translated into a kind of depression, and everything happens as if an intense hidden anger was backfiring. To the impact of the original trauma, still very present in their minds, is now added a permanent sentiment of incapacity, of cowardice and, finally, of incompetence. The worthlessness of living such a life becomes more evident day by day, suicidal thoughts increase in frequency and intensity and are matched by more and more dreadful scenarios, alas alluring at times - even when they are, at first anyway, accompanied by tears. And these scenarios - one could call them death projects - generate insomnia. How could it be otherwise? How would it be possible to close one's eyes and sleep, when the death threat comes from an enemy within? And then follows an increasingly heavy weariness, feeding the deadly mechanism of depression.

Example:

After having been acclaimed for the high standard of his discoveries, this inventor was unjustly robbed of the fruit of his labours. Still worse, after he had been lured with the promise of recognition of what was due to him, Norbert was dragged through the mud by the press - for political reasons. Not only was he dispossessed, but he was also publicly dishonoured. It was only after a legal battle lasting more than ten years that his rights were acknowledged. But by then, the affair had been forgotten and he was not publicly exonerated by the media.

So now he lives in a state of profound depression. He has more and more trouble sleeping, despite massive doses of sleeping pills. He is aware of making his family's life a misery. His own life stopped at the precise moment he read the slanderous article in the press. But that he did not realize at the time, because, as long as the judicial battle was going on, it sustained him. Now that he has won, he feels used and discredited. He has not produced or created anything for a long time. He has no desire to live anymore. Death scenarios haunt him as soon as he relaxes even just a little and he is exhausted.

For this fundamentally honest man, the unthinkable has happened on several levels: he was dispossessed of his property, an invention which made millions of Euros for the one who stole it (objectal level); his reputation was tarnished after having been acclaimed (confusional level); he, the victim, was treated as dishonest, when

values were turned upside down (narcissistic level). His image of the world was devastated.
It brings to mind the cognitivist dimension, introduced by Ronnie Janoff-Bulman37. In order to live in equilibrium with the outside world, man permanently needs to rely on three fundamental beliefs:

- **The world is kind,**
- **The world makes sense,**
- **I am worthy.**

Although inadequate toward understanding certain traumatic manifestations like the phenomena of intrusion, this concept illustrates how the semantic dimension is disturbed by trauma. Depression was the actual outcome of an infringement of these combined designs on the objectal and narcissistic level, adding even more confusion. Only on the first level had he finally responded successfully, by winning legally through *Fight*; but on the other levels, considering the state of confusion he found himself in and the unbearable narcissistic wounding he had suffered, he doubted the belief in his claim. This was not a case of simple, but of complex trauma, since the idea that his adversaries - and there were quite a few of them - were right, had taken hold in him. This inner enemy he could only fight with the *Freeze* by destroying himself.
To summarize the therapy, we obviously started with the shock he had sustained when reading the newspaper article, but I also took into account the internal process of transformation of his negative emotions. Via an active therapeutical process (role-playing), I made him backtrack to the original *Fight* and worked on that with EMDR. EMDR is only applicable after having dismantled beforehand this type of melancholic depression defence. With Norbert, we had to reactivate the hidden inner revolt towards his aggressors which had stayed dead-locked. This anger, however understandable, was concealed behind anxiety and depression and had turned against himself. When finally, confronting the injustice suffered, it reappeared, EMDR proved to be effective - with only one session lasting 4 hours, after more than 10 years of having suffered from the trauma. Afterwards, making the most of the result obtained and his growing self-confidence, I treated some other latent family problems in one follow-up session.
More than two years since the treatment, news from him show a continuation of the psychotherapeutic benefits, namely for the

problems of depression he suffered from when we met: loss of taste for life and taking action and ever increasing suicidal thoughts.

Comments:

These mechanisms are automatic to a great extent. We do not choose to suppress such or such an unpleasant mental image, it happens unconsciously. The same goes for denial, often mistaken for lying. What about these men, obviously tipsy - as confirmed by a blood test - who swear, against all evidence, that they have not touched a drop. They are not lying; contrary to appearances, they have not chosen to deny the evidence. It is the only defence open to them. There is a general impression that defence mechanisms are intentional, and we often confuse them with *coping,* a term used more for a reaction to stress. *Coping* is supposedly conscious, defence mechanisms are not.

It is true that we can perfectly well know the reason for making us take a detour to avoid coming across an ominous gang of idle youngsters, and, on the other hand, be unaware of the real reason for a phobia of lifts, equally responsible for an avoidance. Yet very often, the margin between *coping* and defence mechanism is slim. Conduct of avoiding stress can fast become a habit and can lead to dysfunctional behaviour patterns. The person who, from childhood on, has never learnt to "face the music", will hold onto that behaviour all his life, which can be utterly inappropriate in certain situations. The reasons for relentlessly working to hand in an assignment on time can be conscious; those for not being able to manage a workload, to the point of burn-out, are most probably not.

My theory of psychological trauma.

At first, to quickly go over the psychoneurological thesis I first presented in *EMDR - a Therapeutic Revolution*38, I must give some background information on the functioning of the autonomic nervous system. Controlled by the hypothalamus, it automatically regulates our vegetative life, according to necessity. There is an accelerator - the orthosympathetic (or sympathetic) system - and a brake - the parasympathetic (or vagotonic) system. At any time, it can adjust, for example, cardiac rhythm, blood pressure, the amount of blood sugar etc., and these specific actions are commanded by neurotransmitters (NT).

- The orthosympathetic system, whose function is to prepare the organism for physical or mental activity, carries all sorts

of nutrients to our muscles and our brain. When there is danger, it organizes *Flight* or *Fight*. It dilates the bronchi and accelerates heartbeat and respiratory rate. It increases blood pressure, but diminishes digestive peristalsis. The organism produces noradrenaline (a NT, on the central level released by the locus coeruleus of the brain stem, on the peripheral level by the sympathetic post-ganglial fibres and the surrenal glands); also adrenaline (another NT) and cortisol (a hormone), both secreted mainly by the surrenal glands.

- As soon as the danger has passed, the functions of the organism slow down under the influence of the parasympathetic system, so as to preserve energy. Everything which had been increased, dilated or accelerated by the orthosympathetic system, is now reduced, contracted and slowed down. Not only are digestive function and sexual appetite stimulated by the parasympathetic system; acetylcholine is released by cholinergic neuronal synapses. Acetylcholine is also a neurotransmitter; it inhibits the secretion of adrenaline. The event is grasped - as we shall see later on, acetylcholine is involved mainly in the remembering and learning process. A new memory is shaped, a new skill acquired, as need be.

Our organism can also manage the "slings and arrows" of existence, efficiently combat a threat and, physiologically and psychologically, take on stress. It can then, when the problems are solved, relax and automatically record information relative to that which has occurred, so as to be able to respond even more aptly the next time.

Event ➔Tension ➔Interruption of the Event ➔Relaxation ➔ Representation of the Event ➔Memorization

At any rate, this is what happens when the disturbance of the shock or the threat does not go beyond one's normal capacity for stress management. Of course, this capacity depends on the event, but is also shaped by antecedents and psychological strengths or weaknesses.

In some cases, after a grievous event, getting back to normal turns out to be impossible; it could happen after a natural disaster like an earthquake, a tsunami,a tornado, a falling tree; or after a man-made action such as war, a rape, an assault, a bomb attack etc. The victim continues to live the event as if it had never stopped. The part

which reasons knows very well that this is not the case, but the person is so completely transfixed by the emotional part, that the event perpetuates itself; and the victim consequently suffers from what is called Post-Traumatic Stress Disorder (PTSD).
Introducing this phenomenon, I explained in my first book that psychological trauma was the result of a conflict between two vital archaic reflexes, established in the course of the evolution of the species; the oldest being the survival instinct, the most recent one memorization. To accurately memorize an event, one has to relax, exactly as one must do to digest. When we are too stressed, the meal eaten too fast will weigh on the stomach. In the same way, when we are threatened, our first instinct is to tense our muscles and boost our intellect, so we can react as quickly as possible and in a way best adapted to the situation.
If the threat is still there, even if only imagined, the brain which makes no difference between the actual fact and its imaged representation, signals: "This not the moment to relax, but to be on guard" and reactivates the entire orthosympathetic system. If we are permanently living under threat, although there has been no external reason for a long time, the only way to react is to either freeze or do anything and everything to offload the inner tensions. Any kind of relaxation is impossible, since the associated memorizing mechanism, when activating itself, immediately updates the memory of the event. As I said in 2004, as soon as relaxation occurs and the incident seems to have been digested, the survivor shifts into sympaticotonia once again. This phenomenon is an explanation for all the intrusion phenomena such as flashbacks and, of course, problems with sleep and digestion.

Event ➔ Tension ➔Interruption of the Event ➔ Relaxation➔
Representation of the Event ➔Tension ➔Relaxation ➔
Representation of the Event ➔Tension ➔etc.

This pattern only aims to illustrate the insoluble sequence in phases of tension and relaxation, the latter immediately leading back to the memory of the event. It says nothing about either the event or the actual experience of the victim.

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27 In Annexe One, I am giving some thought to the role of defence mechanisms in psychoanalysis, in relation to the 3 F's.
28 Antonio R. Damasio is an American neurologist, specializing in the emotions. His works will be quoted here several times.

29 Reaction only occurs when the attack is sudden, not when it is furtive, as demonstrated by the metaphor of the frog not reacting when cooked over low heat, whereas it would jump out of the pot immediately if put into boiling water. More mundanely -- and this is something which concerns us all when time takes its toll, day after day until the end -- we either choose to ignore it or we try to slow down the process by all sorts of means, i.e. creams, exercise or plastic surgery.

30 Cortisol is a steroid hormone, secreted from cholesterol by the outer section of the surrenal gland. Under the effect of stress, it prepares us to get ready for effort, mobilizing the energetic resources of the organism, i.e. increasing blood pressure and reducing appetite and the need for sleep.

31 thebrain.mcgill.ca

32 *Coping mechanism* is the mechanism of survival, and coping therefore includes all the possible strategies of escape from psychologically or behaviourally stressful situations, be it by confrontation or evasion. Working day and night for an approaching exam or going to the movies to take one's mind off things are coping strategies.

33 Janoff-Bulman R. (1992), *Shattered Assumptions:* ...